MARBLES & MARBLING.

Eight Marble Patterns.

By

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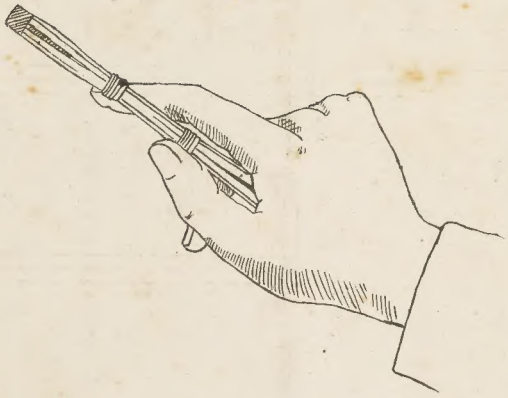


EIGHT MARBLE PATTERNS,

WITH FULL INSTRUCTIONS HOW TO IMITATE THEM,

BY

W. SUTHERLAND.

Panel Imitation of Brocatelle Violette.

Previous to describing the method of working to produce a correct imitation, we must clear the way by pointing out what are the principal features of all marbles; what is required in order to make a successful imitation, &c.

Almost every kind of marble has a distinctive character of its own writ large, if we only understand it; for although there is a difference in the same kind of marble got from different quarries, yet through all these differences there are distinctive features common to all, which serve to show to what class it belongs. This applies, also, in a great measure to the colourings of marbles, there being a marked difference in specimens from different countries and quarries.

We will now consider what are the essential qualities of any successful imitations, and which qualities are part and parcel of every known marble, a knowledge of those things, and the best method of producing the effects, being indispensable. They are as follows:—

1. The characteristic markings on veins of each marble.
2. Depth or transparency or semi-transparency.
3. An appearance of flatness and hardness.
4. An even level surface.
5. Softness of line, even with violent contrast.
6. The various peculiarities and distribution of colour.
7. System of working.

These are all essential points which must be studied and practised in order to produce fac-simile representations, and, as we proceed with our instructions, we shall show how these various effects may be produced with as little labour as is consistent with making a faithful imitation.

Brocatelle marble being one of those which we term crayon marbles (*i.e.*, marble in which the veins are put in with crayons instead of the pencil), and as the second panel for consideration (Italian pink) is also a crayon marble, we judge it best to give first full instructions for the making of these crayons. This is the more necessary as these crayons cannot be purchased from the artist-colourmen, being essentially different to those sold in the shops.

The Making of the Crayons.

These crayons require great care in the making, and must possess certain qualities, or they will not answer the purpose. They must be hard enough to allow of a certain amount of pressure in the working, and yet soft enough to mark easily. Then it is indispensable that they should leave a vein that will soften and blend under the softener without spreading or smearing, and thus make a blurred tint. Then as to colour; this is an important point also. The crayon, when properly made, is far superior to the pencil, although we do, of course, use the pencil in the finishing of the marbles; with the crayon we can give more variety, and avoid stiffness, for we can work it in all directions, thus producing an endless variety of shapes with but little labour.

List of Crayons Required:

Black Indian Red.	Light Red II.
Purple Brown.	Light Brown.
Deeper Red.	Blue Black.
Light Red I.	Neutral Green.

For the making of the coloured crayons we shall require a quantity of the finest washed pipe-clay, which may be purchased from any tobacco-pipe manufacturer. The common pipe-clay used by housewives for whitening the hearth, and sold by most grocers and oil and colour men, will do, but not so well as before-mentioned. The principal crayons required are, first, black, which may be bought of the artist's colourman, and in choosing them we select those that are of a dead black, the glazed ones being too hard; second, a crayon made with Indian red alone; third, one with Indian red, drop black, and a little ultramarine blue; fourth, one with Indian red, black, and sufficient blue to make a dull purple-brown in use; fifth, one made from light red (burnt ochre) and a little Indian red; sixth, one made from Oxford ochre and a little Indian red; seventh, one made from Oxford ochre alone; eighth, one made with blue-black, a little ultramarine blue, and light red, forming a warm, light, grey vein in working; ninth, a dull neutral green, made with Brunswick green, a little burnt umber, but not sufficient to destroy the green. The above will be all that is required for the veining of almost any and every crayon marble.

Process of Making.

The process of making these coloured crayons is as follows:—

The pipe-clay before named is scraped or crushed to a fine powder, and made into a thick paste with water. To this is added some shreds or scrapings of the common white soap, which is well worked into the paste with a knife. We then add the colours in the shape of a dry powder, or ground stuff, in water.

We continue adding the dry powder until the paste becomes stiff, about the consistency of dough for bread-making. It must then be well kneaded and worked by the hand, like glazier's putty. Dry pipe-clay, or fine powder, may be added to facilitate its working and to stiffen it. The composition may then be rolled into a flat cake, about the thickness we want the crayons to be when finished. While it is in this form we cut it into strips about a quarter or three-eighths thick. We now use a flat, smooth piece of wood, three or four inches wide, and with this roll a strip of the paste with it. This gives it a round form, and also makes the crayon more compact and homogeneous. In doing this the board upon which it is rolled should be strewed with the fine dry clay or powder, which prevents it sticking, and also gives them an outside coating of the clay, and adds strength to them. The strips are now cut into convenient lengths: about 1½in. is a convenient size for working with; if longer, they are liable to frequent breakage. They must now be placed on a flat board, and so left until they are perfectly dry. Before drying the whole of them, it is always advisable to dry a portion, and make a trial of them. If the crayon crumbles in working, and breaks too easily, more soap must be added; but if they are too hard, then add a little more clay and colour. When they are thoroughly hard, they may be squared by rubbing on sand-paper; but it is not necessary or wise to do this until the crayon comes into actual use, as they keep better as they are. They should be kept in a dry place, and placed in cotton-wool, so as to prevent them getting broken by shifting about. It will also be perceived by the intelligent reader that the depth or strength of colour of any of these crayons will depend upon the amount of colour mixed with the clay, as the clay acts in a great measure as whiting does when mixed with colour. Any shade or depth of coloured crayon may be made according as the colour or the clay predominates. The soap adds very much as a binding medium, and thus allows a very much greater quantity of dry colour to be used, and yet be fine and hard enough to work with, than if no soap were used. In fact, without the soap the crayons would be useless, as it not only helps to bind the whole together, but causes the lines made on the paint with these crayons to keep firm, and yet soften and blend just as much as is required.

CHAPTER II.

The Use of the Crayon.

Having given a description of the method of making the crayons used in marbling in exactly the same manner I have adopted in my own practice, I have now to describe the manner of using them, and in order to make my description clear, have sketched a hand holding the tool as it should be held in actual work, and also a crayon-holder of the full size, with crayons at both ends. This is the more necessary because many students may not have used them, or in fact seen them used in marbling.

The manner of holding the crayon-holder when in actual work is of more importance than appears on the surface. It requires to be held firmly, but the grip should be light and delicate, so that it can be moved freely up and down, and in every direction. It should also be so held that we can regulate the pressure in order to make a light or dark line, a thick or thin one; if we wish to make a faint line with the same crayon, springing from a broad line, it can be done by simply relieving the pressure required for the dark line, holding the tool lightly between the finger and thumb, and still retaining perfect command, so as to move it in any direction required. On the other hand, if we grasp the crayon-holder as if it were a hammer, and we were driving a nail into wood, it will not be possible to have that freedom of movement so essential to the work in hand.

There is another all-important matter in the study of the subject, and that is the study of the general form or run of the veins, and the shape of the patches or broken lines inclosing the patches of colour. It should be always borne in mind that there is, so far as my knowledge goes, neither a round, a square, nor oval in any marble; the nearest approach is contained in what

are called fossil marbles—that is, marbles of which fish bones and shells form the features; but even in these the above forms are not perfect. Some marbles, especially the beautiful Brêche marbles, show certain differences both in form and colour, and are all distinguished by a broken, angular, and sharply defined form of veins. These veins cut up large forms into small ones, and I give a sketch of the characteristic features, with the object of impressing upon my readers the absolute necessity of becoming acquainted with the various forms of each class of marble.

The Advantage of Crayon.

It will be observed that the Brêche marble, to which the above belongs, has a broken appearance, which feature is common more or less to all this class or kind of marble. The straight lines and sharply angular patches are peculiar to these marbles, and divide them from the class to which Siena, Brocatelle, and others belong. These differ more or less, according to the quarry they are got from; but, like Brêche marbles, they have a strongly marked character of their own, as shown by the sketch.

In this class of marbles we see that the veins take quite another form to the previous sketch. There is none of that sharp angularity as seen in the Brêche marbles, no harshness in the lines, but they are soft and irregular, and broken with indentations, and hardly a line of an inch in length that is straight or approaching straightness. If the student has these differences in form impressed firmly on his mind, he will have accomplished half the battle.

No Waste in the Crayons.

In the sketch of the crayon-holder, the ends of two crayons will be seen in solid black. These I have sketched in order to show how small a piece of crayon is required to work with without danger of breakage, and it also serves to show that the smallest pieces of these crayons may be worked up, and so waste be avoided; and even when the crayon is too short for working with, by adding two or three ends together, crushing them afterwards, then moistening them with a little water, they may be again used, so with a little care there need be absolutely no waste. I may say here that a piece of these crayons three-quarters of an inch long will do an astonishing quantity of work.

It will not be out of place to point out that much of the success of any imitation of marbles is due to their being done upon a level surface, not necessarily extraordinarily smooth, *but level.* In getting up the grounds great care should be taken to fill up and make level the wall or panel by filling up and stopping, either in quick colour or in distemper, and rubbing down. If this is properly done, and the hills and valleys made even, it will add very much to the value of the quality of the work when finished. All grounds for crayon marbles must be finished in flat or dead colour, and *stippled.* This gives a key upon which the crayons bite easily, which they will not do on a smooth surface such as oil-colour.

The Marbling.

Having cleared the way so far, I will now proceed to describe the Brocatelle-violette marble. In this series of panels I have endeavoured to make them as useful a selection as possible, and those of them which are representations of two or three marbles inlaid will, I doubt not, prove valuable guides to work from.

Brocatelle Violette.

Brocatelle violette is found in the neighbourhood of Molinges (Jura). It has something of the same form as the Spanish Brocatella, and differs from all other Brocatellas in that it has received a purplish tint from contact or mixture with oxide of iron, which, in its mixture with white, gives it its name. As will be seen, it is broken up into small and large pieces by dark purple, brown, and black veins, and tinted with violet and light pinky greys with touches of white. The method of imitating it is as follows: Ground colour, dead white, stippled. The grounding or rubbing-in colour for working with is made from flake white and pure linseed oil, stained with vermilion and a little ultramarine blue. As this is an important part of the working of all crayon marbles, too much care cannot be used in the mixing of it. The colour used should be mixed with pure refined linseed oil, and should be of such a working consistency as when rubbed *bare* upon the white wall or panel to produce the same tone and depth of colour as the prevailing light tint seen on the panel. And when we say it must be rubbed bare, we mean to put as *little colour on the white ground as possible.* A stiff, well-worn brush is the best, and plenty of elbow-grease. This is an absolutely indispensable condition, because if too much grounding colour is put on, it will be found when we come to soften the crayon lines with the hog-hair softener, they will spread instead of keeping firm, and thus the work will be spoiled. On the contrary, if there is only the right quantity of colour on it the lines will stand firm and comparatively sharp. Care, however, must be taken that every part of the wall or panel is covered. Having rubbed in the ground colour, now mark out the panel into broken patches still further by crossing them. Now mix some violet colour with white and turpentine, adding a little of the rubbing-in oil colour to it, with vermilion and ultramarine blue mixed with it to form the violet tint, also some blue-grey and a little yellow ochre in the same way. We now use a half-inch tool or a hog-hair flat fitch, and put in the violet colour as seen in the panel, darker in some parts than in others, then use the bluish grey in the same manner. We now wipe out those parts we wish to remain white with a clean rag, and give a touch of yellow, just as seen in the pattern. We next use the hog-hair softeners, and gently and carefully soften and blend the work. This is the most critical operation, and is done as follows: Take the tool in hand, holding it partly by the stock, and using the extreme ends of the bristles only, and *not the side*, and if the brush is held perfectly upright—that is to say, stands straight out at right angles from the wall or panel—it will be found that by moving backwards and forwards, across and in the same direction as the veins, without pressure, but at the same time feeling that the bristles bite, a sharp, clear, and fine line may be thus retained, sufficiently softened, without smearing or blurring, and the grey, the violet, and the yellow will at the same time be softened and blended. When this is perfectly dry, damp the work down with a damp chamois leather (wash-leather), and then mix some thin white with turps alone, and, using the wing feather of a goose, dip it into the white and go over the work with it, softening at the same time. This thin white thus used adds very materially to the effect if properly done, but it must not be so thick as to hide or obliterate the veins. It will of necessity be thicker in some parts than others, but the "accidental" effects are an advantage, inasmuch as they help, so to speak, to give that stony appearance so desirable. We now use the violet tint, and again go over the parts with it—the same with the grey and the yellow—and also add to the brilliancy of the whites by putting a little solid white upon them here and there. This, by force of contrast, makes the other part of the whites more transparent. In the proper management of the whites, solid or transparent, much of the success of the imitation depends. A special chapter will be devoted to this part of the subject in due course. We now glaze in the dark parts of the veining, and using a pencil and black, put in the black veins as seen in the panel, care being taken not to make them too clumsy or apparent.

A Second Process.

Another way of doing this marble is to rub in the oil-colour quite bare, as before mentioned. Then use the crayons as already directed, and soften with the hog-hair brush. When this is dry, put in the various colours by glazing, the difference being simply in glazing on the wet or dry colour. When the work is varnished it will be found that the varnish subdues and slightly alters some of the lighter tints and the white, and it is therefore necessary in working to keep this in mind, and make such parts stronger than we would were we intending leaving it unvarnished. The effect of the varnishing on these colours is, in the majority of cases, not by any means a defect but a benefit.

Summary of the Process of Imitating Brocatelle Violette Marble.

1. Rub in the oil-colour very bare.
2. Use the brown crayon to put in the veins.
3. Lay in the violet and grey tints as seen in the panels.
4. Wipe out the whites with a clean rag, and put in the touches of yellow as seen on the whites.
5. Soften the whole carefully, watching the effect produced to avoid smearing.
6. When dry glaze over parts with the violet, the blue-grey, &c., and put in the dark parts with the dark brown.
7. Glaze over the whites with a lighter and more transparent glaze of the grey. When this is wet put in touches of solid white, soften and blend them with the badger-hair softener.
8. With the pencil and black put in the black lines round and about the principal patches.

Italian Pink Marble.

The name Italian pink has been given to this marble on account of its colour, which is of a soft pink hue. Geologically it belongs to a very extensive series of marbles called Brêche marbles, which range in colour from a light pink with rose-colour, yellow, violet, and purple-brown veins, interspersed with white, dark red, and yellow patches. It is found in a very wide area. Quarries of it have been, and are being, worked in France, Belgium, Africa, and various other countries. One writer says that, like all marbles to which the name of Brêche has been given, and which vary in form as well as in colour, according to the locality in which it is found, it appears like a mass of large and small pebbles which have been cemented together. My idea of its formation, judging from its general appearance, is that originally it had been formed in large blocks or slabs, then again broken up by some convulsion of nature into all sizes of irregular pieces, sharp and angular, just as a sheet of glass or earthenware breaks when struck with a hammer or stone. These broken pieces have again been united by petrifaction and cemented into great blocks or strata, being assisted by heavy super-incumbent pressure. The broken pieces, both large and small, retain their sharp form and angularity just as seen in our example.

But whether the name of the marbles called "Brèche" originates from the character of the marble or from the place where it was found is not material to our purpose.

Italian pink is certainly a very appropriate name to give to that kind of Brèche marble which is light in colour and best adapted for using in large masses for staircase walls, vestibules, &c. It is the most pleasing and valuable we have for decorative purposes, not even giving place to Sienna. Its beautiful pinky hue, approaching white in some parts, is broken with sharp angular patches of every size and shape, by means of purple, brown, light red, Indian red, and black. Across many of these patches are a semi-transparent grain or marking in pink, grey, and red, somewhat resembling the markings in cornelian. We frequently find two pieces or patches lying close together which have these veins or grain running across them, showing that if they were turned round and the two edges placed together the grain of the one would match the other exactly. This is so much the case that it leads us to the conclusion that the two pieces at one time were one block or slab, which subsequently have been broken up as we see them. The grain or markings we are speaking of afford a wide scope for artistic treatment in the finish.

Crayons Required.

The crayons required for this marble are black, dark purple, brown, light red, yellow, and a warm grey. The ground colour must be pure white, stippled. The rubbing-in or working colour made with flake white, stained with the best vermilion to a light pink shade. This colour must be a darker pink when mixed than it will appear when rubbed very bare upon the white ground. There is so little colour left on that it really stains the ground but little, and yet it must be strong enough when rubbed in to allow of the scumbling white in the finish to be distinctly seen, as in our panel. The oil used for mixing this colour should be refined linseed. By using this we insure its permanence and purity. We shall also require a pot or vessel for a mixture of vermilion in turps, having a little of the rubbing-in colour added; also a mixture of ultramarine blue; also Oxford ochre in the same form. These colours must be used thin.

Method of Working.

In working this imitation of Italian pink on a staircase wall or other long surface, I first set out the wall in blocks. These are best large, not only for convenience and effect in working, but also to keep away from the wall-papers. First use the black crayon to mark out the principal or leading veins and the largest patches, this leading vein running obliquely across the length of the blocks, as is seen in the panel given. We may note here that in all blocks of veined marble the mass of the broken pieces and the darkest colours invariably rest upon or are crowded around this leading vein, so called from its being in all cases the darkest and strongest feature of the slab or block; and while it is a natural feature of these marbles, it is also the most convenient form possible for working the imitation, as it gives a base line upon which to build the mass of the work, and give to it the most pleasing form. When this leading vein is put in, we use the next darkest crayon, and break up the slab into large and small angular pieces, or broken pieces, in and about the leading vein, the small ones being crowded in between the large ones, as seen in the panel. We now use the light red crayon, and still further break up the service; but in this case gradually breaking away into the large plain surface. The yellow crayon may now be used here and there, but principally upon those parts furthest away from the dark veins. The skeleton or structure of the marble is now ready for the dressing, and we next take a flat camel-hair tin tool, and paint in a portion of the large and small patches with the thin vermilion tint, doing the same with the blue tint, putting in a touch of the latter here and there amongst and on the darker veins. We then dip a feather in the yellow tint, and put in some touches on and across the small and large patches (much of this may be done with the yellow crayon), and gradually breaking away into the larger plain surfaces. We now use the hog-hair softener, and go over the whole surface, carefully softening the veins and colour tints, bearing constantly in mind what we have before said as to the use of this tool—not to smear or blur the one into the other so as to destroy the sharpness of the lines, but let each vein, however small or faint, be still seen after the whole has been softened and blended. The work is now left until dry and ready for finishing.

CHAPTER III.

Finishing.

Having now got the marble rubbed in and ready for finishing, we take a feather and thin white, and scumble the panel over with it, not covering it all over, but partially so, using the badger-hair softener to soften it while wet. This spreads and softens it, and helps to give it that stony appearance as in the pattern. We now use a partly solid white, and paint in portions of the patches, brushing them towards the edge of the patch, but not over the line. This gives sharpness to the edge of the patch, and also variety. It is very useful, too, in defining the limits of a block of marble on a staircase wall, as by simply contrasting an almost white patch against a dark one on the next block, we get a clear division line without having to resort to strong lines or artificial contrasts. The effect thus produced may be seen on some of the patches in the panel given in March. I now glaze some of the small patches with a thin wash of vermilion and Indian red, or, if these tints are made the right shade of colour, by the addition of white, they may be painted solid. These solid patches, in contrast with the semi-transparent patches, give a better effect to the whole; but they must be put in with judgment and care. In and amongst the patches are a number of small broken bits. Some of these are of a much darker tone of colour than any other. They are principally of a reddish-brown colour, which may be made from Indian red, with a little burnt umber and white. These impart a still more stony look to the imitation. We now proceed to put in those veins or markings we have spoken of before as being in that wavy form we see in the agate or cornelian. To do this, we use an ordinary flat camel-hair tin tool, and dip it into thin vermilion, purple lake, or Oxford ochre. With the tool charged with any of these colours, I put in these veins across the patches, here and there across some of the medium patches, as may be seen in the panel. These assist the work very much, and add to its beauty. But before using the tool we *open* it irregularly, either with the hand or with a coarse-toothed comb, this opening being as irregular as possible, so as to make broad and narrow marks. Care must be taken not to make too many of these markings, and those we do put in should be carefully done. Some of them will pass over two or three patches lying close together. Some of the patches may now be partially outlined with a nearly black brown in and on the darkest veins to give force and sharpness. When this is done, I put in some solid white streaks across some of the patches, as seen in the panel—some of them mere narrow streaks; others broad, with irregular edges. These, if properly done, are very effective. In varnishing Italian pink, the best copal, French oil, or the best pale carriage should be used. Its colour is so pure and delicate in parts that any ordinary or high-coloured varnish will turn it yellow, and thus destroy its purity. So in all cases when it is used, this consideration should have its due weight.

We have occasionally used a small hog-hair overgrainer for putting in the agate veins—one about an inch wide. This may be opened by drawing it edgeways across the fingers or a piece of wood. This latter will open it in a more irregular form than the comb, and thus obtain narrow and wide veins with one stroke.

The Hog-Hair Softener.

This tool, which is exclusively used for marbling, has been by many called the hog-hair badger. This, however, is a misnomer. The badger-hair softener derives its name from the hair with which it is made, being that of the animal called the badger, and it is used for both woods and marbles; but to call the hog-hair softener a badger is ridiculous. The most useful size of this tool for general purposes is about three and a half to four inches wide, and it should be made of the very best bristles, three or four knots in thickness, according to the thickness of each knot. It should have a good spring, and be perfectly level and even at the top end, with which we work. This is an absolutely necessary quality in a good tool. The bristles should measure about three and a half or four inches from the stock. The length of the handle is of no consequence, but the stock should be strong but not bulky. Of course, there is a difference in making—well made and poorly made; but if the conditions stated above are observed, a good tool will result. Mr. J. Hill, of 230, Pentonville Road, London, N., is a specialist in the making of these tools.

In the using of this softener we follow the instructions given in our article on the Brocatelle-violette.

Summary of the Process of Imitating Italian Pink Marble.

1. Ground, flat white, stippled.
2. Rub in the light pink oil-colour very bare.
3. Use the black crayon, and mark in some of the largest patches or broken pieces; then put in a leading vein the length-way of the block.
4. Mark smaller patches in between the larger ones—some very small, others almost as large as the biggest ones, using the dark brown crayon, also the dark red; then the light red, then the yellow, as seen in the pattern, breaking away into the plain spaces.
5. Put in the tints of vermilion and blue; also in and amongst the small bits.
6. Use thin yellow and a feather, and put in touches of yellow.
7. Use the yellow crayon, and run in fine veins in and about and across the patches.
8. Soften carefully with the hog-hair softener; this will bring it into shape, and enable us to see where we can improve it by adding colour or otherwise.
9. When dry scumble with thin white.
10. Put in the markings in yellow, red, and grey.
11. Lay in solid whites.
12. Put in dark lines round the patches.
13. While working have pattern near by to refer to when required.

How to Paint the "Whites" in Marbles.

How to manage the whites in coloured marbles so as to give that transparency, depth, and hard effect seen in all real marbles, and without which all imitations are wanting in that stony appearance characteristic of the real ones, is a question of supreme importance to the marbler, which I hope to assist him in attaining in this chapter.

Scumbling.

The first use of white upon the marble after rubbing in the form and part of the colour is to scumble the work over with it very thin. There are two or three reasons for this. In the first place, if we examine a piece of real marble, we shall find on the partly polished surface a greyish, floury appearance. This is produced by the atoms of which it is composed reflecting the light, and which helps to soften the lines or veins. When the piece of marble comes to be brought up to a fine polish, this floury appearance almost disappears, and this is characteristic of all marbles. Now we scumble the thin white with a feather upon the imitation in order to produce the effect above described; not only this, but if we find, when we come to finish, that there are certain parts of the veins which are too strong for that part of the slab or block on which they are placed, we can by scumbling with white reduce their strength and bring them into harmonious keeping with the rest of the work.

Effect of Scumbling.

Another important effect which this scumbling has is that whenever it passes over a patch of colour, it will sink into it, and partake of that colour to a certain degree, thus creating a variety of half-tints, which are very pleasing and effective. In fact, we produce effects often which we have not calculated upon. Here, however, a word of caution is necessary. The scumbling should be done with care and judgment; if indiscriminately daubed on, it will do harm instead of good, and produce a chalky, painty appearance, which is very objectionable. When we paint in the streaks of solid white on top of the thin white, the latter is thereby rendered semi-transparent by the force of contrast, and a further effect of this kind is obtained when the work is varnished, for while it partially effaces some of the thin white, it gives force and tone to other parts, thus producing a variety of tints and hues very pleasing.

Now, this scumbling and solid whites are mainly applicable to the variety of Brêche marbles, such as the Italian pink, in which the whites are all on the surface, and in marked contrast to such marbles as Siena, Rouge Roi, &c., in which the whites are underneath the red, and, of course, require a different treatment in order to produce the effect desired, which treatment will be fully described in due course. Here it would be out of place.

CHAPTER IV.

Explanatory.

I wish to point out before commencing this chapter that in order to show as much of the characteristic features of each marble in the limited size of our plates, I am compelled in many cases to crowd in and reduce the size of many of the broken patches in such marbles as Siena, Italian pink, Breschia Ficanio, &c., and this may leave a wrong impression upon the minds of students. Therefore, I hasten to say that many of the patches in the marbles named above are double, treble, and even six times the size as represented in these patterns; consequently, if all the broken patches were kept down to the small dimensions shown, and especially upon a large-sized block on a staircase wall, we should not only multiply our work tenfold, but the effect would not be near as good as when large patches and small ones are judiciously contrasted.

Caution in the Using of Crayon.

I take the opportunity of giving a word of advice and caution in the use of the crayons. It will be found, as a matter not to be avoided, that some of them will break in the using, while others will bear almost any amount of pressure. This arises from the fact that we cannot put a sufficient amount of pipe-clay, &c., into their composition without reducing the depth and strength of the colour; this is especially the case with the dark red and the blue-grey crayons; consequently, in using these brittle ones great care should be exercised. First, in fixing them into the crayon-holder, the square ones should be placed with two angles of the square in slits or openings in each side of the holder. It will be found that by doing this the holder not only grips the crayon firm, but does not break it, because the pressure is upon the solid part of it. Another safeguard is obtained by fixing the crayon so that only as much as is absolutely needed projects beyond the end of the holder; and in using, the pressure upon the crayon should be light, and the crayon-holder should be turned round in use, so as to wear it equal on all sides.

Griotte Marble.

There are two or three varieties of this beautiful marble. Griotte d'Italie and Griotte fleuri are the best known. The latter is called flowery because of the larger patches of white and fossil shell it contains. It is a French marble, and is found in several parts of the Pyrenees. It is, however, from the quarry of Bourriette, situated between Cannes and Fehnes, that the finest quality of this marble is obtained. It is of a deep rich red, with dark brown and black veins, interspersed with large and small spots of semi-transparent white, some of these being fossil shells. It has also spots here and there of a brilliant red almost as bright as vermilion, as seen in the panel. It is a comparatively rare marble, and the quarries only produce small blocks, which cannot be used on large surfaces. In imitating it, however, we are not confined to size, as is the marble mason; consequently we can adapt it to suit our purpose. Apart from this, however, it is an exceedingly rich and useful marble for small panels, or columns and pilasters, or for bands and general inlaying with other marbles.

The Method of Imitating Griotte.

As this is crayon marble we shall require a white ground, flat and stippled. Now mix the rubbing-in colour with linseed oil as for the other crayon marbles previously described, but using as a staining colour Indian red with a very little black in it. Rub this in bare, but sufficiently strong to cover the whole. If it is a little streaky it does not matter, as the softening afterwards will level it out and take out the scratches or marks. Now take the black crayon and mark out the form of the patches exactly, or nearly the same as shown in the pattern. When this is done go over it with the hog-hair softener just lightly and carefully, so as to take off the harshness of the black lines, but not enough to blur or destroy their sharpness. I must continually urge the necessity for care in this respect, as much of the beauty and form depends upon it. Having softened it, next take away and dip one part of it in turps, wrap it over the thumb, and wipe out the small and large patches of white in the form they are intended to remain, just as shown on the pattern. Now use vermilion with a little Indian red mixed with it to take off its extreme brightness, and put in small patches on the large ones. If this is properly done a very good effect may be obtained. Now let it stand until it is dry and ready for finishing. Our next concern is to work up the whites, and give them that solid and semi-transparent appearance seen in the real marble. This is done by just going over one of the white patches previously wiped out, with a mixture of flake white and a slight touch of ultramarine blue mixed with it, but only just sufficient to tinge it, and while this is wet put on a little solid white, then soften slightly with the badger-hair softener. The "badger" should only skim over it, the object being to soften the solid white into the thin transparent white and blue previously put on, without spreading the former into the latter. A little careful practice, with a thorough understanding of the effect we want to produce, will soon enable the grainer to surmount the difficulty. Now use the pencil and drop black, and go over the veins and round some of the patches, taking a leading vein the whole length of the panel, inclosing some of the patches, but not over all of them. This black serves two purposes. It makes the lines or veins made by the crayons to look of a brown colour, and so we get two colours of vein. Some of the broader crayon veins have a fine line of black on each side of them, which makes them still browner. Now look the work well over, and add a spot of red or brown and a touch of black here and there in places that appear to require it to increase the effect. It is a good plan before varnishing any of these imitations to take a palette-knife and go over the surface with it, laying it flat and carefully using the edge to cut off any bits or grit that may have got on in the working. Of course, this must be exceedingly carefully done or the edge of the knife will cut the paint, but if well done it will leave the surface quite smooth, far better than using sand-paper, which is apt to scratch and so make bad work.

Pyrenean Green.

The outer band of the panel is an imitation of a green marble found in a portion of the Pyrenean mountains and valleys. It is one amongst several, some of which are veined with green, just as one variety of the Griotte is streaked with green. The difference in the colour arises from purely accidental circumstances. Marble is a carbonate of lime, and more or less pure according to the situation in which it is found. The fossil marbles of the British Islands are found full of the remains of dead creatures cemented together and hardened into stone. The origin of the Irish and Belgian marbles are principally formed of the shells of fish, hardened in the same way. Mr. Arthur Lee says carbonate of lime, at some time in the history of particular districts, was subject to great heat and pressure; and to-day we find what is called marble. Where the lime was pure, we find statuary marble; where the lime contained streaks of dark colouring matter we get veined marble. Similarly we can trace the manner in which all the coloured marbles were produced. Limestone, in close proximity to beds of iron ore, becomes red; copper gives us green, and so on.

How to Imitate Pyrenean Green.

We here lay hold of a different class of marbles to the crayon marbles, which do not admit of the use of the crayon, and require totally opposite methods of working. There are two methods of imitating this marble—the one by opening out the veins with turpentine on a white ground, and the other by putting in the green veins with a feather and pencil on a black ground. In working on this latter system work off a dead black ground either quick drying mixed with japanner's gold size or distemper black. I have myself usually given the latter the preference, because the green veins when feathered upon it sink into it, and enables me by following on with more green upon the first veins to obtain a variety of shades which could not be otherwise got. The veins on this also retain their sharpness much better than when done on any other ground. If we work on oil black there is no key to hold the colour, consequently it runs out of shape, and the work is not so good.

Colours.

Mix up several shades of green with white added, and use it without much body for the first start, and add to it a little japanner's gold size to bind it, so that we can go over it again quickly. Then take a feather (these should be from the wing of a goose, they being the most useful and most suitable for the purpose), and dip it into the darkest shade of green, and go over the panel with it, giving the veins a lead in one direction, not necessarily covering the whole of it, but leaving portions of the black ground in small and comparatively large patches. When this is done dip the feather into the next lightest tint of green, and go over the whole again, but in a somewhat contrary direction. If this is properly done it will leave a large number of irregularly-shaped patches of the black and dark green ground bare. Now use a still lighter shade of the green, going over the same ground with this, running it in the same direction, or nearly so, as the first feathering. By this means we produce a sort of network of veins, the one crossing the other, and we also produce a great variety of tints of veining, for when one vein crosses the under ones, we get more body of colour more or less as the accidental play of the feather leaves much or little behind it in working, and the solid, or comparatively solid, parts give, by force of contrast, more transparency to the under work. This being done, follow on with pure white, using the feather very lightly, and putting in some fine veins with it; also using a large pencil or swan quill to put in the larger veins. The white should be used rather thin. We thus get a number of veins, having many different degrees of transparency, which is the distinguishing feature of the marble.

When the work is dry, proceed to glaze and finish it. We glaze it in order to enrich, subdue, and modify the previous feather work, and in doing this keep in view the run of the vein, and by using different shades of the glazing colour we obscure some parts and give prominence to others, and so make an exact imitation. The glazing colour may be made from Prussian blue and raw sienna. The several shades of Brunswick green may be used, rubbed very thin and bare, but it is not so transparent as the first one. Part of the large veins are white, or nearly so, the whole being softened or blended into the green. This, if carefully and intelligently done, gives the work a stony and marble-like appearance. It looks as if the veins were originally white, and then a thin wash of green spread over it. Acting on this idea we glaze over all the veins, and with a clean rag wipe out parts of the veins, and put solid, or nearly solid, white upon these parts, and soften them so that the outer edges of the white shall fall away into the green, the effect being excellent. Now use pure black, and with a pencil or swan quill put in the small patches of black seen in the pattern. This adds very materially to the effect, as the black of the ground in contrast with the pure black thus added makes the former look of a dark green hue.

A Second Method.

The second method of imitating Pyrenean green may be accomplished by an entirely opposite system to the one previously described, and excellent imitations may be produced by using it. For the black ground substitute a white one, and open out the veins with turpentine. This method may be used with advantage for some purposes, especially so in the imitation of inlaid marbles. This fact I shall elucidate further on. The opening-out method is worked as follows: On a white ground rub in a mixture of Brunswick green and black, and a little burnt umber for the Pyrenean green; then use a feather and turpentine and run it over the green colours. This immediately opens out the colours, showing the white ground, and while it is wet, and before it begins to run, take a rag and dab it with it. This takes a lot of the colour off, and puts on some also by taking it from one part and transferring it to the others. This creates a variety of veins varying in depth of colour. Now take a piece of stiff paper, and crumple it up and dip it into some turpentine, which should be in a shallow vessel, then dab it on to the previous work. This breaks up the veins, and the fresh turps going on parts causes the white ground to appear lighter in parts, thus making a still greater variety of shades of green. Now use a fitch or a swan quill pencil, and open out the large veins which run across the panel, and with a clean rag wipe out parts of the large veins while they are wet. After this let the work stand until it is dry, and then glaze it over with green, as described in the first process, putting in the various shades of green with a swan quill, not covering it all over, but using the darker shades of transparent green to bring the whole into shape. If this is carefully done it will cut up the edges of the large veins and produce the general form of the marbling. Then use a pencil of ivory black, and put in the small black patches as seen in the pattern. This black not only seems to shape the veins, but enriches the green, and being solid causes the other work to appear more transparent than it otherwise would. Now add touches of pure white to the large veins when the green has been previously wiped off. It will be seen by what has been said that the glazing of the work is of the greatest importance to the ultimate result. In glazing we may introduce a little of the colours, such as yellow and red, which seems to give a variety of tints, and adds very materially to the finished effect.

Summary of the Process of Imitating Griotte Marble.

1. Ground, white, stippled.
2. Rub in with oil-colour Indian red, with a little black added.
3. Use the black crayon and put in the dark veins.
4. Soften with the hog-hair softener.
5. Wipe out the white parts.
6. When dry work up the whites with thin white first, and solid white upon it while wet; soften or blend it.
7. Put in the bright red spots, but not quite so bright as shown in the pattern, which is an error of the lithographer.
8. Use pure black, and outline some of the patches with it, putting in a leading vein.

Method of Imitating Pyrenean Green Marble.

No. 1 Method.

1. Ground, black.
2. Use a feather and go over the panel with several shades of thin and solid green colours.
3. When dry, glaze with a transparent green.
4. Wipe out parts of the large veins here and there.
5. Glaze parts with darker green, and put in black parts.
6. Touch up whites, and blend.

No. 2 Method.

7. A white ground.
8. Rub in with a dark green, made from Brunswick green and black or a little burnt umber.
9. Open out the veins with a feather and turps, and dab with a rag.
10. Use pencil and turps for the large veins, and wipe out the parts to be white on the large veins.
11. When dry, glaze over as previously detailed.
12. Touch up the whites and put in the blacks.
13. When in doubt, refer to the pattern and the instructions given.

Inlaid Marbles.

The old-time workers in marble have left behind them some beautiful examples of this kind of work in the form of inlaid columns, pilasters, table-tops, &c. This style of inlaying was called opus Figlimius, and it is said was begun to be used some time before the Christian era, and representations of figures, flowers and fruit, combined with foliated ornamentations, were produced in a conventional style and in various colours, but with little attempt at shade.

An Ancient Art.

At the time of the Renaissance in the sixteenth century, this art was revived under the name of Roman Mosaic, by which name it is still known. Another development gave it the name of opus Vermiculatum. In it we find life-like imitations of natural objects, the colours and shadows being reproduced with realistic fidelity by using picked pieces of different marbles, glass, precious stones, &c. In some mosaics of this kind, such delicate gradations of shadow and colour have been obtained as to appear paintings. The Florentines were exceedingly clever at this work, and have left some exquisite examples behind them, proving the truth of the saying that "a thing of beauty is a joy for ever."

It will be seen by what we have said above, that in imitating the admirable work of the old masters, who worked in real marbles, we need not be afraid to introduce into our imitations figures of birds, flowers, and foliage, and even the human figure. This style of inlaying opens out a wide field to the marbler, requiring the exercise of the greatest skill, a knowledge of the harmony of colour, and also some practice in design. In getting out the designs, we should study the capabilities of the material, and only carry out designs that either have been carried out in the real marble, or such as could be executed with it. If we do this we shall avoid one great cause of failure.

Method of Imitating Inlaid Marbles

I will now describe my method of imitating inlaid marbles, addressing myself to those of my readers who have attained a

certain proficiency in and a practical knowledge of the various marbles, otherwise it would be like setting a child to read when it does not know a single letter. Having decided upon a design, which should, as a rule, be bold and simple, and as we have before said, such as could be executed in real marble, the wall or panel we purpose decorating should be got up with three or four coats of white paint, and finished flat and stippled, the reason for which will be noted further on. We now carefully set out the wall, making accurate measurements, and strike the straight lines with line and chalk. Then go over the lines with black lead pencil and straight edge; any circles or segments are best struck out with compasses holding a piece of lead pencil. In doing this it would not do to stick the point of the compass into the wall or panel, so, to avoid injury, we must use a square piece of wood about half an inch thick, and put lines across it, dividing its surface into four equal parts. By this means we get an infallible guide for the centre. Now place this wood exactly on the centre lines, and hold it with one hand, while with the other you place the point of the compasses in the centre of the piece of wood, and thus run in the circle or part of the circle with the black lead. When we have thus outlined with lead the various parts of the design, paint in any parts requiring a black or other dark ground colour, taking great care not to put too much colour upon it, nor to leave any fat edges, or any projections or uneven places. A lining fitch is the best tool for running the outer lines, and then fill up between. I have used the badger-hair softener for levelling any panelled grounds, and by working from the outside of the band and brushing inwards, I have been very successful in smoothing and levelling such parts. All being now ready for marbling, we proceed to paint in the principal marble, that occupying the largest service. In the coloured example it would be Griotte, and the next the green, leaving the narrow siena band until the others are dry. It will, of course, be understood that the imitations of the various marbles will be done in accordance with the instructions specially given for each. Great care must be taken to wipe off clean any colour that may have got on to the siena or band in doing the green and Griotte; also to avoid encroaching with one marble on to the space set apart for another when using the paper or rag. This may be done by using slips of stiffish paper of various widths, and cut with straight edges, and in using them, place one edge of the paper on the division line below the two marbles, holding it with one hand while you dab on the colour with the crumpled paper; the strip of paper thus prevents any of the colour going on to the part so covered, and leaves a sharp, straightly-cut line. In doing curved lines, the same plan must be adopted, but, of course, the paper must be drawn with the compasses, and cut to the circle or curve required.

Bands.

If we are doing a narrow band, cut a piece of paper, say, four times the width of the band, and cut a slip out of the centre of the exact middle of the band, and in working place this on the part the band has to escape, and hold it in position while what is required is done through the cut strip. This keeps both edges straight and sharp. Avoid using very thin colour while using the paper, as it will be apt to run underneath, and so on to the next marble. These strips of paper are very useful in preventing the staining of floors or any part requiring protection while doing somewhat dirty work. When the marble mason puts together different marbles, whether on a wall or table-top or a wall panel, he endeavours to lay them so that the joints of the marble shall be as little seen as possible, and in order to do that he cuts and grinds them to a straight and square edge, or in the case of curves, still true to the line; and although for the purpose of cementing them together he uses a cement for bedding them upon, and also for putting between the joints, this latter is so thin that it is hardly perceptible. But however true the edges may be, there is still a slight line showing. This is sometimes white and in other cases coloured. Now, it will be evident that if in the imitation we can produce this fine white line, we shall give a still nearer imitation than without. And this is the way it must be done: On the straight lines we place a straight edge, the bevelled edge to the depression line. We then take a sharp-pointed penknife, and place the *back edge against* the straight edge, and carefully draw it down the full length required. This scrapes off the top colour, and leaves a fine white line—sharp, clear, and perfectly straight.

It will be at once evident that great care must be exercised in the doing of this. The knife point must be kept at one angle, nor must any pressure be used, or we shall cut too deep. If the knife blade is depressed a much broader line than we want will be made; and if we do not mind what we are about, we shall take the line beyond the place it should stop at, and so make a bad place.

Circles.

In doing circles or curves, templates should be cut, or they may be run by using a pair of compasses, with one foot sharpened like the knife, and using it as before directed. There is no other method by which so fine a line can be done, and it is to enable us to make a sufficient body of white on the groundwork that we give the three or four coats of white. Of course, it requires a great deal of care and skill to do this work well, as indeed does any good work, and it would be folly to attempt to do it except we strove to do it with all our might.

Our Black and White Illustration.*

The design in black and white for inlaying is copy of a large panel (six feet by three feet), which was prepared by the writer twenty-nine years ago for the Art Workmen's Exhibition, 1864-5, Manchester, and it is now as fresh and looks as well as when first done. It is composed of the following marbles: No. 1, Rouge Royal; No. 2, Bardiglio; No. 3, Spanish Brocatella; No. 4, Rose antique, with black bands and black mouldings. It is, of course, a difficult matter to give a correct representation of a marble without colour; but our sketch will suffice to illustrate our instructions. The centre holds a couple of birds with a nest, and on the two stars are butterflies worked on a ground of rose antique. This panel is an example of the opus Vermiculatum spoken of in the early part of this chapter. No. 1 is Rouge Royal; No. 2, Bardiglio; No. 3, Spanish Brocatella; No. 4, Rose antique; No. 5, black (plain). In this example we have a decidedly harmonious combination of colours, being an equal balance of the three primary colours, modified, namely, blue on blue-grey in the Bardiglio, red in the "Rouge Roi," and yellow in the Brocatella, bound and centred in solid black, which latter purifies the whole of the other colours, and it is only by this judicious and intelligent use of the various plain and coloured marbles that a successful result can be obtained. In this panel I have confined myself to pure marbles in the mass of the work, and the combination serves to show that it is not necessary to employ a large number of marbles to produce a good effect, but that simplicity of design and excellence of workmanship are the goals to be aimed at.

Now, in the doing of the birds and butterflies we have a wide choice of colour, so that there need be no difficulty in that respect. The great point we have to accomplish is to make all we do in this style to look like marble, however small it may be—not to make it a mere painting, that would be out of place, but to give the shape of the bird, the leaf, or flower in a conventional form, the detail being such as one might fancy some of the veins in the real marbles would be. If we give the white that depth, as well as solidity and transparency, we have before spoken about, we can make any form or piece to look like marble. When the object to be represented is small, the methods and systems of working must be modified and adapted to its size and form, and, of course, will have to be worked with the panel, but even in that case the crumpled paper and rag will be found useful.

CHAPTER V.

Brescia Ficario Marble.

The marble which we are now to consider is one of a class which differ much in colour, but have a general resemblance in their markings. Some of them derive their names from the situation of the quarries from which they are taken, but others again have their distinguishing name given from their form, as, for instance, they are called bresciated marbles, their formation showing that they are composed of certain hard rocks which have been broken up by a convulsion of nature, and then cemented together by some fluid or semi-fluid material. Mr. G. H. Blagrove, in his useful little work, gives no less than eleven different kinds of this marble, quarried in France, Italy, and Belgium. Many of these, however, are not suited for imitations, except in small quantities. The slab of which our panel is a facsimile was obtained by the writer about forty years ago from a very old house at Stratford-le-Bow, which stood on the land occupied by the works of the Eastern Counties Railway, near London. It formed part of a chimney-piece of beautiful design.

This marble is very suitable for use on columns and pilasters, and by lightening the dark patches and working it so as to avoid spottiness it may be used for large panels, or, indeed, for staircase walls. The combination of colours is very harmonious, and there is a sweet, soft blending of the one into the other which is very pleasing.

How to Imitate the Marble.

Brescia Ficario may be described in the mass as a semi-white marble, cut up or figured with black, purple, or green veins, having patches of a rich purple, pink, grey, and green, with white as the leading feature. In the pattern given herewith there is more work than there would be if we were doing a column, pilaster, or a large panel. This is done for a set purpose, in order to give the student nearly all the variations of colour and form found in the real marble.

Ground Colour and Crayons.

This being a marble best worked with crayons, a dead white and stippled ground will be required, a rubbing-in colour exactly the same as for Italian pink, but omitting the red, the white requiring no staining colour. For veining use a black, a darkish purple, and a green crayon; also mix some purple lake and brown madder together.

* See page 12.

Form of Markings.

The rubbing-in colour having been carefully and barely painted on the panel in accordance with previous instructions, the panel is ready for veining. I first use the black crayon, and mark in some of the largest patches, which, as may be seen, are long and rather narrow in form, and, unlike the Italian pink, have rounded or partially rounded ends. Further, these patches appear to run in one direction, as if they had been at one time in movement in the midst of some semi-fluid substance. The advantage of marking in the largest patches first is that at once we thus give a character and form to the veining, which also helps us very materially in the filling up of the interstices with the small patches. Having thus given the main feature to our work, then use the purple or purple-brown crayon, and fill in the interstices between the large patches with it, using the green crayon afterwards to cut up the large patches. Now take the hog-hair softener and gently soften the veins, taking care not to smear them with too much softening, but exercising our judgment and observing it closely so as to stop when enough has been done. Now take a piece of paper, crumple it up, and then dip it into the mixture of madder-brown and purple lake, with a little black added; with this dab in the dark parts of the pattern. The paper thus used leaves large and small spaces on these parts, which represent semi-oblong and roundish pebbles, as seen in the real marble, and by using the black crayon and going over these parts with it each fragment is converted into the particular shape we want it. These are now softened, the greatest possible care being employed. Some of these pebbles are very beautifully marked. The work is now allowed to stand until it becomes thoroughly dry, when we proceed to glaze it.

Finishing.

By working in the manner described on the white ground, we produce a semi-transparent appearance, which gives it a stony effect. Now use the thin white (flake white and turps only), and with a feather scumble over the whole of the panel, softening it as we go along with the badger-hair softener. It must be understood that this white must be used with judgment, and must be thin enough to work freely and not obscure the veins, as upon this much of the effect of the imitation marble depends. Now take a feather and a mixture of thin Brunswick green. This must not be strong in colour, but just about the same strength and tone as the green crayon veins appear. Run this in and about the other veins, and on and over the large patches. Having done this, we again use the thin white, and go over parts, especially those parts which require the veins to be subdued somewhat. By dipping the feather into a thicker white occasionally, and touching places here and there with it, we greatly enhance the look of the other parts. On some of the smaller patches and pebbles we put a little lake or other colour, as shown in the pattern. This enriches the whole, and if properly done has an exceedingly pleasant effect. For the finishing touch take some solid white from the tube, add a little turps to it, so as to render it workable, and with this and a little flat camel-hair tool paint in a part of some of the patches, softening them upwards to the edge of the patch. This solid white, by contrast, reduces the thin white and makes it semi-transparent, and, in fact, gives great value to the imitation. At this stage we may add greatly to the finished effect if we take a pencil and black and outline some of the large and small patches with very fine lines, not in any way to obscure the previous veining, which, by being worked on the wet paint, are not so decided as those put in with pure black or dark purple at the finish. Consequently we thus get a variety of tints or hues in the veining, and if the black lines are put in against the white and coloured patches they give sharpness and distinctness without destroying the softness of the first crayon veining.

Summary of the Process of Imitating Brescia Ficario Marble.

1. Dead white ground, stippled.
2. Use black crayon to put in large patches.
3. Use dark purple crayon and green to put in small patches between the large ones.
4. Soften carefully with hog-hair softener.
5. Scumble and glaze with thin white.
6. Feather-in the transparent green veins.
7. Use thick white here and there, and pure white from the tube for parts of some of the patches.
8. Outline in parts with black and dark purple, using a fine pencil.

CHAPTER VI.

Brèche Oriental and Malachite.

This example of inlaid marble is made up of two marbles in the form of a plain panel and border, viz., Brêche Orientale and Malachite. Previous to describing this panel I would suggest that the pattern should be mounted on a hard wood panel—bay-wood is the best—and then sized and varnished. I recommend this because, while unvarnished, one-half the beauty of the specimens is not seen because of their deadness. It is the same in real marbles; their beauty of colour or form cannot be fully seen until they are polished. The polishing brings out shades and tints of colour that remain hidden in the unpolished surface. In the imitation half the effect is lost when unvarnished. The blacks or dull brown and purple veins do not have their full value, consequently we lose the effect of contrast and richness of tone and hue. The panels should be secured to the wood with flour paste of a perfectly smooth texture, and only just as much on the paper as will serve to securely fasten it to the panel, the margin with the lettering on being first removed. The wood panel should be one inch or one and a half inches larger than the specimen, and should be painted solid black. This will give the effect of the two coloured marbles being sunk into a slab of black marble. The paper panel should then be sized either with gilder's parchment size or isinglass size, which will, of course, be free from colour, and will not injure the whites or other delicate tints in the marbles. It will be the safest plan to give two coats of size and French oil varnish.

Brèche Oriental.

Brêche Oriental, as will be seen by the specimen given, is a very rich marble, composed of fragments or pebbles of white, black, and brown of various shades and tints, cemented together naturally by a very close and hard cement, which, as well as the other parts, admits of a very high polish, and is suitable for using in columns, pillars, and chimney-pieces, and as such is very useful either alone or in contrast with other marbles. As will be seen on reference to the pattern, there are reddish brown veins which run in and around the white and coloured patches, in many cases outlining them; around others of the patches a fine black line is seen, which in the imitation seems to give a sharp and distinct character to them and defines them.

The Method of Working to Imitate the Marble.

Ground colour, dead white, stippled. Mix a rubbing-in colour, using burnt umber, light red (brown ochre), and a little black, and boiled oil stiff enough to lay on a strong opaque colour. Go over all with this. Then take crumpled paper of a stiff kind, and with this and turpentine open out the colour, using a rag to *dab* the colour with occasionally, so as to prevent the turps running and thus spoiling the form. If done properly this will leave a mottled surface of different shades of veins of a warm but dull red. I now use a clean rag and wipe out the white patches, large and small, some quite clear, others half clean. A little turps may be used to clean off the colour from those patches which are to be left pure white. Now mix a dark, dull umber brown, made from burnt umber, and a little black and red. With this and a flat fitch or a swan's quill put in the semi-dark patches, small and large. Some of these may be of a tint approaching a dirty lead colour. Next follow on with pure black patches of various sizes and shapes; no round or square ones, but irregular in shape. Having got thus far we shall find that our panel is beginning to take its proper form, and will have the small patches of white and the other colours running in between the larger ones, with the red-brown veins enclosing the whole of them. When these are all dry take a stiff fitch and scumble over the red veins with a mixture of a light red with a little umber added, using it so as to produce the proper shade of colour as seen on the pattern; then use the black and the dark dull brown, and add a number of the small patches in order to

Glazing.

further break up the masses of red veins. Now glaze over some parts of the white patches with thin white (having a touch of blue-black added to it), and use solid white on others of them. The thin white may also be used as veins running over the black and other patches, but these must be confined to the patches, and do not extend beyond them. This, if carefully done, will give a hard, stony look to them. The white and grey patches are now outlined with a fine line of black; and with a solid colour of the red shade of the veins, go over them with a pencil and heighten them and give a better character to them, and correct them where required. The instructions here given, if faithfully followed, will result in success; but there will, of course, be much, after the clearest description, left to the taste and judgment of the student. If he is apt and capable of comprehending these instructions clearly, he will soon be able to follow me correctly, and if he does so his work is sure to be satisfactory. It is well to bear in mind what I have before said: that almost any variety of tints, shades, and hues of colour may be added in the glazing; large or small bits may thus be made to partake of any colour we choose, and the general tone modified to suit our purpose when desired.

Malachite.

Malachite is, strictly speaking, not a marble, but is a carbonate of copper which has been and is still used for the same purpose as marble; consequently it has been used as such. Russia is the country in which the largest deposits have been found. It is very beautiful when polished; in colour of various shades of green, ranging from a light sea-green to a bright emerald, and generally of a cold hue. Its markings are peculiar to itself, and

consist of a series of irregular rings which, starting from a centre or core, branch out principally in one direction, and widen as they recede. If we cut through a large onion we may get an idea of these markings, but avoiding the regularity of the markings of the vegetable. Malachite is only found in small masses some four or five inches in diameter, and in irregular shapes, which are cut and joined together to form large panels, table-tops, &c.

How to Imitate Malachite.

Malachite is a simple stone to imitate, but requires great care and precision in the working, as well as judgment and skill in its manipulation. The ground must be flat white. Mix a rubbing-in colour with Prussian blue and raw siena, producing a cold blue-green, using clear drying oil as a medium, and adding a little sugar of lead as a drier. I now use a stiff brush (a stencil brush will do), and brush in the colour *very bare*, leaving just sufficient colour on to form a light cold-looking green. Now take a hog-hair fitch, one well worn but forming a tolerably fine edge; with this mark in the rings, using a darker green, having a somewhat similar tone to the rubbing-in colour. Some of the rings will be broader than others at their extreme ends, as seen in the pattern. Care must also be taken to work the rings so that they will finish at the joinings of the separate pieces (of which I have said the marble is composed) to a sharp but irregular line. Some of these will, however, run into the other and appear as one piece. The marble mason makes his joints as fine as he can to hide the joinings, and this point must be kept in view. The markings being now all put in, the work is left to dry, and then it is glazed. For this purpose use a green as before, made from Prussian blue and raw siena, but thin, using the dry oil as a medium, and cover the whole of the previous work with it, rubbing it very bare, just sufficient to show that it is a glaze. While it is wet wipe out the rays which cross the rings. This, if done carefully, will produce a very pleasing effect. Now take a pencil and the dark colour and touch up the rings with a fine line at the other edges of the rings—that is, if they require it. I may here repeat what I have before said: that in glazing we may alter the tone of colour in order to suit the position and surroundings of the marble so as to produce harmony of colour.

Summary of the Instructions for Imitating Brêche Orientale.

1. Ground, white, flat or dead.
2. Rub in with a mixture of burnt umber and light red (burnt ochre), and a little black added, but very little. Thin with drying oil, stiff.
3. Use crumpled paper, stiff; dip part into turpentine and open out the colour, using a rag to dab it with.
4. Use a clean rag and wipe out the white patches, small and large.
5. Use a dark colour, umber brown, with black and red added. With this put in the dark patches, some almost lead colour.
6. Use pure black in the same way.
7. When dry, scumble over the veins, using light red with a little umber added.
8. Use black, and put in small patches.
9. Glaze over some patches with thin white, and put in some solid.
10. Outline the white and grey patches with a fine black line.
11. Read over the full description as above carefully.

Summary of the Method of Working to Imitate Malachite.

1. White ground, flatted.
2. Rubbing-in colour: A blue-green made with Prussian blue and raw siena, adding a little sugar of lead, and using refined drying oil as a medium.
3. Rub this over barely with a stiff stencil brush.
4. Use a flat fitch, and put in the rings.
5. When dry, glaze over and wipe out the light rays. This colour to be used thin.
6. Use pencil and dark rubbing-in colour, and line the rings when required.
7. Read the full instructions carefully.

CHAPTER VII.

Vert de Espagne, Brocatella, and Griotte.

The Inlaid Panel.

It singularly happens that the marbles in our present panel all come under the conditions of marbles we have already described—that is to say, that they all three can be worked by the methods described in our previous chapters, although there is a difference in the character and colour of the Brocatella in our present panel, and that I have before described;—if I give a summary of the methods of each, and then the student can refer to the detailed instructions in the numbers as above.

The Brocatella in our panel differs from the panel before described more in its colour than in its character. It is much yellower and redder—red and yellow mixed. There is an absence of the purple and violet hues, which gives one its distinctive name, Brocatella Violette; but in other respects is almost identical. Both, however, may be imitated by the same systems and methods in the number referred to above.

The Griotte is identical, and needs no further description than that already given.

The Vert de Espagne differs from the Pyrenean green already given in its character and colour, although both may be done on the same system and by the same methods. As will be seen by a comparison of the Pyrenean green forming the border to the panel of Griotte and our present panel, the latter is finer in its veining and more streaky, although there are some broadish masses of green and white in some specimens; and as we have before remarked, there will be a wide difference in two blocks of marble both coming from the same quarry, therefore if we keep to the general character and colour, a slight divergence either way will not much matter. In the imitation of this green the feather is the principal tool used, and when properly handled does its work well, whether on the black ground or used with the turpentine to open out the veins on a white ground.

Summary of the Points of Imitating Brocatelle Marble.

1. White ground, flatted.
2. Rub in with the oil colour as before described, rubbing it exceedingly bare.
3. Break up the panel with the black and dark brown crayons, and soften gently with the hog-hair brush.
4. Mix a reddish-brown colour from Indian red and burnt umber; also one of a reddish-blue tone.
5. Dip a piece of crumpled brown paper into these colours, and dab it over the lines here and there; and dab with a rag over these.
6. Wipe out here and there bits of white with a rag and turps.
7. Let dry, and then glaze in parts with reddish-yellow and ochre full strength in places as it is seen in the panel.
8. Use a pencil and black, and outline some of the pebbles, and form a leading line or lines right through the mass of the work.

Methods of Imitating Vert de Espagne.

First Method.

1. Black ground.
2. Use a feather and go over the whole of the panel with several shades of green and white.
3. When dry, glaze with a transparent green, Prussian blue, and raw siena.
4. Wipe out parts of the large veins here and there.
5. Glaze over parts with darker green, and put in small black parts.
6. Touch up whites. See detailed instructions.

Second Method.

1. A white ground.
2. Rub in with dark green, Brunswick green, and burnt umber.
3. Open out the veins with a feather and turps, and dab with a rag to prevent running.
4. Use pencil and turps for large veins, and wipe out the parts to be white on the large veins.
5. When dry, glaze over as per detailed instructions.
6. Touch up whites and put in blacks.
7. When in doubt refer to pattern and detailed instructions.

CHAPTER VIII.

Siena Marble.

The quarries from which this beautiful marble is procured are situate in the vicinity of the Italian town of Siena—hence the name.

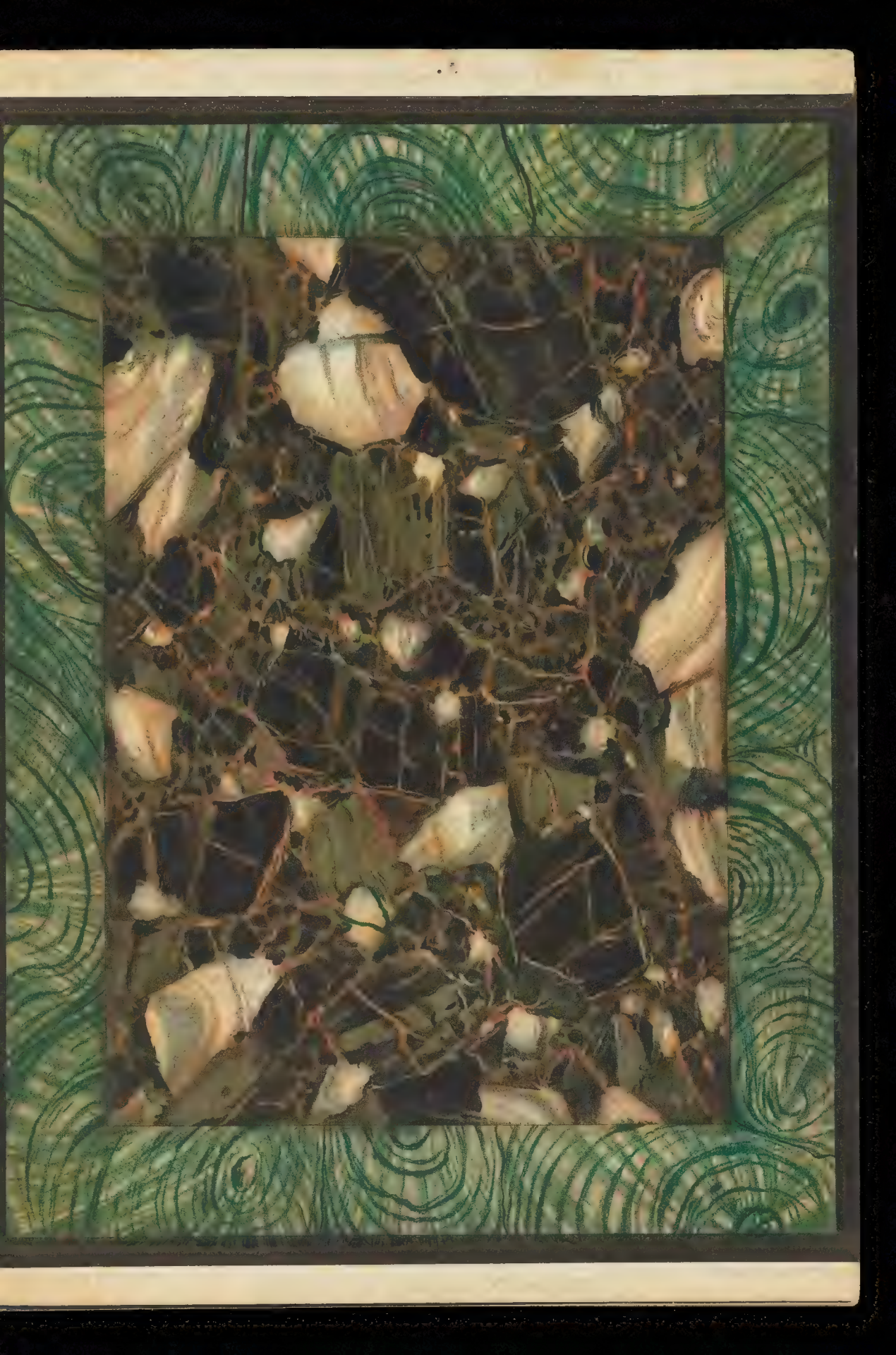
Siena marble has been a favourite marble for ages. The Greeks, Romans, and most nations and peoples of antiquity were acquainted with it, and used it for decorative purposes. As gold or gilding harmonises with all colours, so Siena marble may be used in combination with any other marble or series of marbles with a harmonious result, and even in these latter days, when there are so many different marbles brought from all parts of the world, Siena is as highly prized as ever it was, and it is indeed a most beautiful as well as a most useful marble.

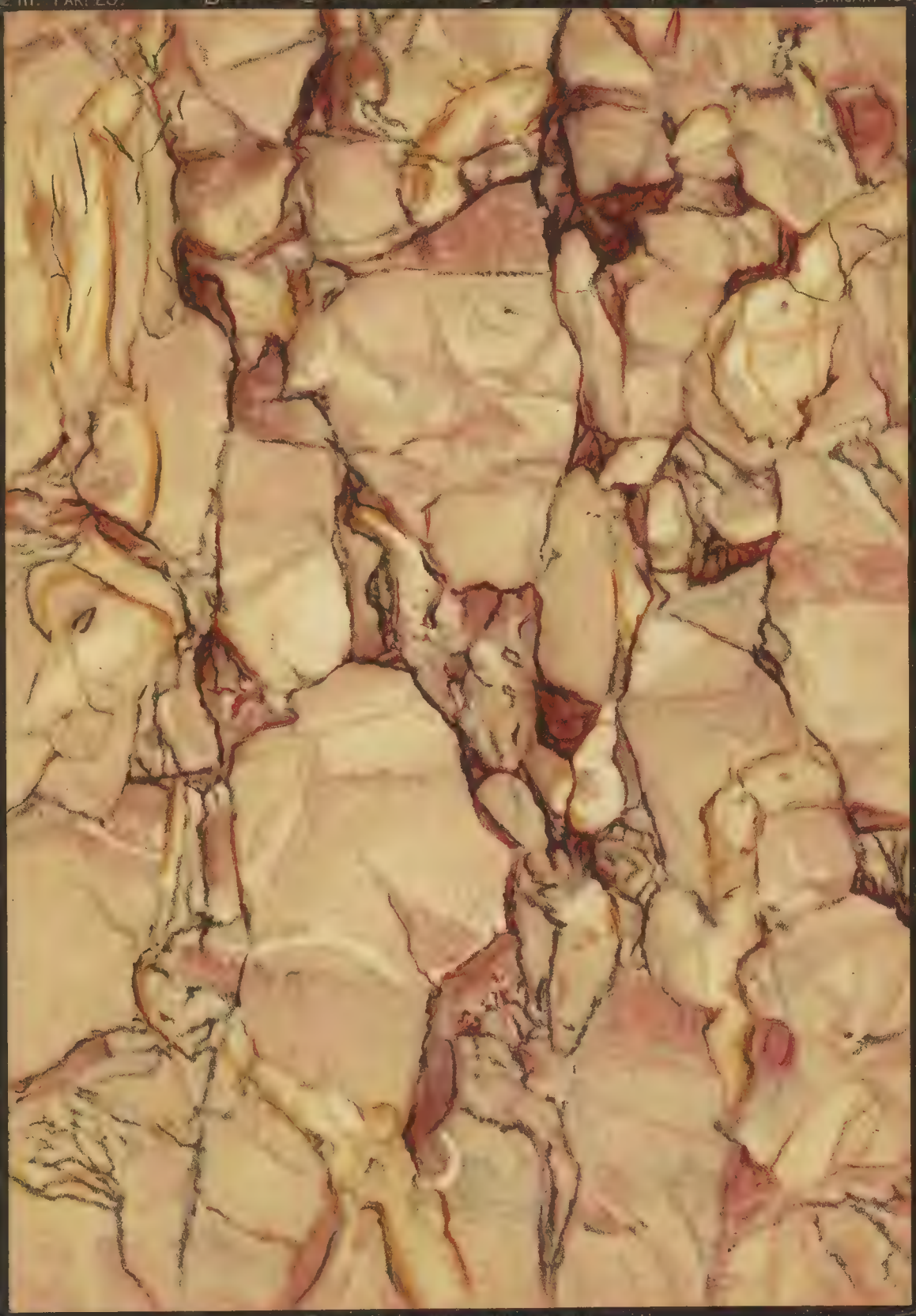
Qualities of Siena.

It is of a soft and quiet tone of yellow, varied with warm shades or depths of yellow ranging from a light cream to a deep warm ochre colour, broken up into small and large patches with veins of black, red, brown, purple, and yellow, with semi-transparent small and large patches of a bluish-grey and white spar-like material. This marble has been, and is still, extensively used for covering staircase walls, for which purpose it is admirably suited, not alone from its colours, but from the facility with which it can be cut into thin slabs for veneering walls.

Markings.

The characteristic markings of Siena and Italian pink marbles should be studied carefully, for without a knowledge of the differential points of these two marbles no true imitation of





Brocatella Violette

W. Sutherland Pinxt.

Lith by Kleinertz Manchester

GRIOTTE, PYRENNEAN GREEN, SIENNA

W Sutherland Pinxt.

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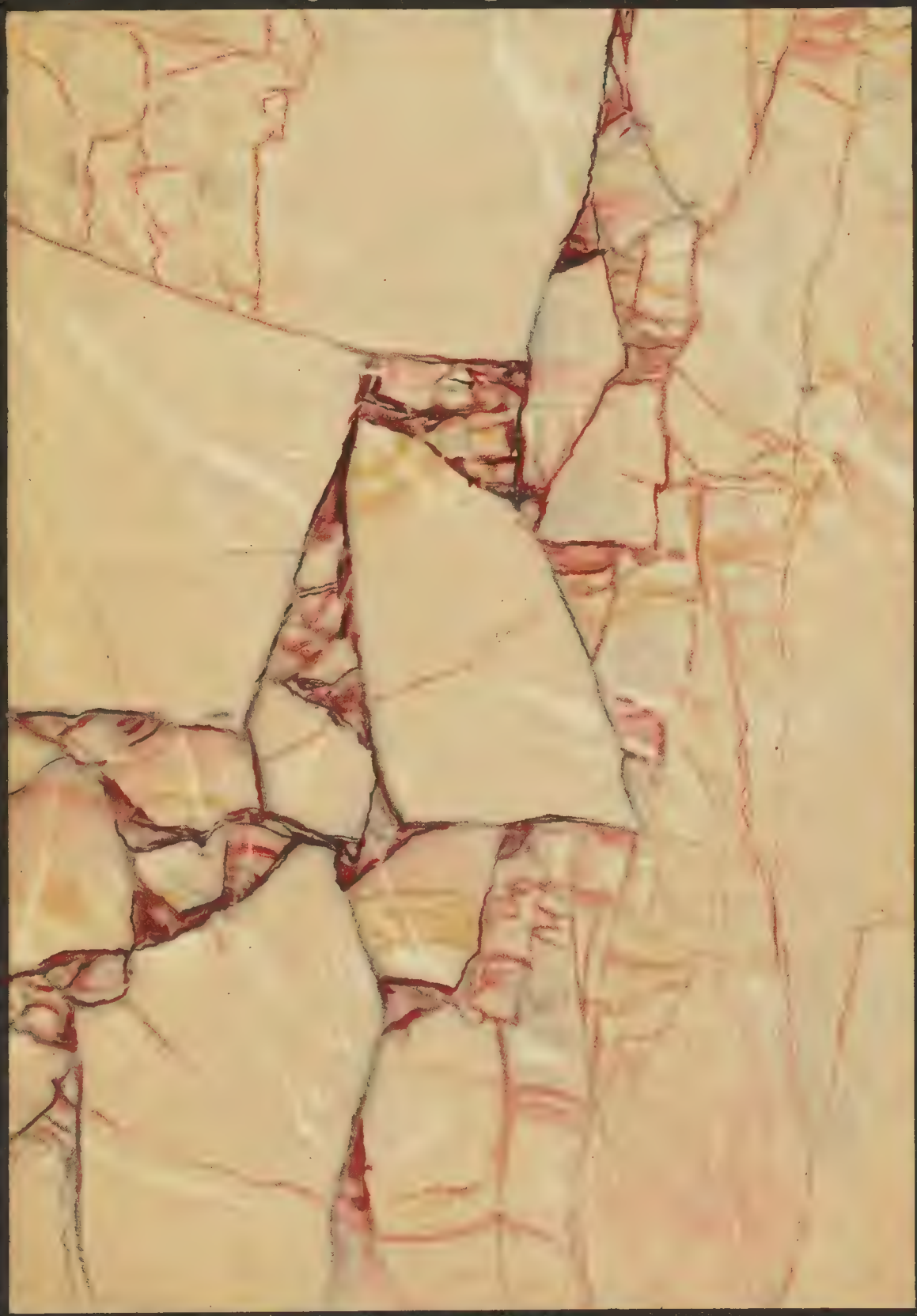

Italian Pink.

Lith by Kleinertz, Manchester.

Lith by Kleinertz Manchester. W. Sutherland Printr.

VERT DE ESPAGNE & BROCATELLE.

Litho by Knowles & Co. Manchester. ROSE ANTIQUE, BLACK & GOLD. W. Sutherland Printer